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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
MILLS, DONALD L	

ART UNIT	PAPER NUMBER
2416	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/667,385	CALDWELL ET AL.	
	Examiner	Art Unit	
	DONALD L. MILLS	2416	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *23 September 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-35* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-35* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *23 September 2003* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities: Paragraph 0002 fails to properly cite the application number of the commonly owned, copending application.

Appropriate correction is required.

Drawings

2. The drawings are objected to because formal drawings are required. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 101

3. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

4. Claims 1-22 and 28-30 rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Regarding claims 1 and 28, the claims are rejected under 35 U.S.C. § 101 as not falling within one of the four statutory categories of invention. While the claims recite a series of steps or acts to be performed, a statutory "process" under 35 U.S.C. § 101 must (1) be tied to another statutory category (such as a particular apparatus), or (2) transform underlying subject matter (such as an article or material) to a different state or thing. The instant claims neither transform underlying subject matter nor positively tie to another statutory category that accomplishes the claimed method steps, and therefore do not qualify as a statutory process.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 1-35 are rejected under 35 U.S.C. 102(e) as being anticipated by Turner (US 7,305,047 B1).

Regarding claims 1, 18, 30, and 35, Turner discloses an automatic lane assignment for a receiver, which compromises:

Transmitting a first ordered set from the first node; receiving a second ordered set at the second node, the second ordered set corresponding to the first ordered set; and determining if the second ordered set is identical to the first ordered set; wherein: the first ordered set complies with IEEE Std 802.3ae specifications for ordered sets; and the first ordered set is different from ordered sets predefined by the IEEE Std 802.3ae specifications (Note: the Examiner interprets the claims as relating to lane ordering initialization. In addition, the process of ordered set verification, as claimed, is well-known as taught by Infiniband™ Architecture Release 1.0, "Chapter 5: Link/Phy Interface," Vol. 2, Physical Specifications, October 24, 2000, pp. 80-81. Referring to Figures 11 and 12, incoming data is received from a standard XAUI transmitter on input port 1102 as lanes A through D. The data is then de-serialized (1104), decoded (1106), and de-skewed (1108). The de-serializing, decoding and de-skewing is similar to that which occurs in the prior art XAUI receiver (FIG. 9) as already described. The XAUI receiver 1100 also includes a lane reordering block 1110 and a lane monitor 1112. The lane monitor 1112 monitors lanes A through D as packet data is received. Based on the received packet data (which is standard packet data without special lane identification codes), the lane monitor determines the proper lane assignments for lanes A through D and controls the lane reordering block 1110 based on the lane determination. The lane reordering block 1110 reorders the lanes A through D to the appropriate lanes 0 through 3 based on control signals from the lane monitor. The appropriate

lanes are then passed to the control character removal block 1114 and data is finally output on port 1116. The control character removal is similar to that which occurs in the prior art XAUI receiver. In particular, Figure 12 shows the format of fault signaling that may occur in the received packets. When a XAUI link first starts up, the XAUI transmitter sends either idle control characters on all four lanes or fault sequence ordered sets. During a fault sequence, a sequence control character 1202 appears on lane 0 at the same time that a 0x1 or 0x2 character 1204 appears on lane 3. Thus, the lane monitor 1112 identifies lanes 0 and 3 by observing this fault sequence received on the input port 1102. See column 4, lines 11-58.)

Further regarding claim 35, Turner discloses utilizing Q-ordered sets (D code-groups, valid data code-groups, and K code-groups, valid special code-groups), which are well-known code groups as set forth in Infiniband™ Architecture Release 1.0, "Chapter 5: Link/Phy Interface," Vol. 2, Physical Specifications, October 24, 2000, pp. 68-77, 80-81, for lane verification in accordance with the IEEE 802.3ae standard and Infiniband standard (See column 1, lines 12-20.)

Regarding claim 2, Turner discloses *wherein permutations of code groups within the first ordered set yield different ordered sets, each of the different ordered sets is different from the ordered sets predefined by the IEEE Std 802.3ae specifications* (Regarding claims 11 and 12, the transmitted data is formatted according to the IEEE 802.3ae standard. See column 1, lines 12-20.)

Regarding claim 3, Turner discloses *wherein the first ordered set has a different code group in each lane* (Referring to Figure 12, when a XAUI link first starts up, the XAUI transmitter sends either idle control characters on all four lanes or fault sequence ordered sets.

During a fault sequence, a sequence control character 1202 appears on lane 0 at the same time that a 0x1 or 0x2 character 1204 appears on lane 3. Thus, the lane monitor 1112 identifies lanes 0 and 3 by observing this fault sequence received on the input port 1102. See column 4, lines 48-58.)

Regarding claim 4, Turner discloses *wherein the first ordered set is preprogrammed within a physical coding sublayer* (Referring to Figure 12, when a XAUI link first starts up, the XAUI transmitter sends either idle control characters, formed by the physical coding sublayer per the standard, on all four lanes or fault sequence ordered sets. During a fault sequence, a sequence control character 1202 appears on lane 0 at the same time that a 0x1 or 0x2 character 1204 appears on lane 3. Thus, the lane monitor 1112 identifies lanes 0 and 3 by observing this fault sequence received on the input port 1102. See column 4, lines 48-58.)

Regarding claims 5 and 22-24, Turner discloses *wherein the first ordered set is capable of being programmed by a user* (Referring to Figure 12, when a XAUI link first starts up, the XAUI transmitter sends either idle control characters, capable of being programmed by a user, on all four lanes or fault sequence ordered sets. During a fault sequence, a sequence control character 1202 appears on lane 0 at the same time that a 0x1 or 0x2 character 1204 appears on lane 3. Thus, the lane monitor 1112 identifies lanes 0 and 3 by observing this fault sequence received on the input port 1102. See column 4, lines 48-58.)

Regarding claims 6, 25, and 32, Turner discloses *generating the first ordered set* (Referring to Figure 12, when a XAUI link first starts up, the XAUI transmitter sends either idle control characters, first ordered set, on all four lanes or fault sequence ordered sets. During a fault sequence, a sequence control character 1202 appears on lane 0 at the same time that a 0x1

or 0x2 character 1204 appears on lane 3. Thus, the lane monitor 1112 identifies lanes 0 and 3 by observing this fault sequence received on the input port 1102. See column 4, lines 48-58.)

Regarding claims 7 and 31, Turner discloses *wherein the first ordered set is generated when the first node is activated* (Referring to Figure 12, when a XAUI link first starts up, the XAUI transmitter sends either idle control characters, generated at initialization, on all four lanes or fault sequence ordered sets (different from a set of code groups predefined by the protocol). During a fault sequence, a sequence control character 1202 appears on lane 0 at the same time that a 0x1 or 0x2 character 1204 appears on lane 3. Thus, the lane monitor 1112 identifies lanes 0 and 3 by observing this fault sequence received on the input port 1102. See column 4, lines 48-58.)

Regarding claim 8, Turner discloses *wherein the first ordered set is generated upon recognizing a link status condition indicative of misrouted IEEE Std 802.3ae 10GBase-X lanes* (Referring to Figures 18 and 19, when the lane monitor recognizes that lanes 1 and 2 are swapped the lanes are reordered accordingly. See column 5, lines 30-39.)

Regarding claim 9, Turner discloses *wherein the first ordered set is generated upon detecting a link status condition indicative of misrouted IEEE Std 802.3ae 10GBase-X lanes* (Referring to Figures 18 and 19, when the lane monitor recognizes that lanes 1 and 2 are swapped the lanes are reordered accordingly. See column 5, lines 30-39.)

Regarding claim 10, Turner discloses *storing the first ordered set in a memory at a physical sublayer of the first node* (Referring to Figure 12, when a XAUI link first starts up, the XAUI transmitter sends either idle control characters, formed by the physical coding sublayer per the standard, on all four lanes or fault sequence ordered sets. During a fault sequence, a

sequence control character 1202 appears on lane 0 at the same time that a 0x1 or 0x2 character 1204 appears on lane 3. Thus, the lane monitor 1112 identifies lanes 0 and 3 by observing this fault sequence received on the input port 1102. See column 4, lines 48-58.)

Regarding claim 11, Turner discloses *identifying the first ordered set* (Referring to Figure 12, when a XAUI link first starts up, the XAUI transmitter sends either idle control characters, formed by the physical coding sublayer, on all four lanes or fault sequence ordered sets. During a fault sequence, a sequence control character 1202 appears on lane 0 at the same time that a 0x1 or 0x2 character 1204 appears on lane 3. Thus, the lane monitor 1112 identifies lanes 0 and 3 by observing this fault sequence received on the input port 1102. See column 4, lines 48-58.)

Regarding claim 12, Turner discloses *wherein the first ordered set is transmitted after an A-ordered set* (Referring to Figures 18 and 19, when the lane monitor recognizes that lanes 1 and 2 are swapped the lanes are reordered accordingly, which correspondingly may happen after an A-ordered set (checks for alignment of each lane relative to the others) per the 802.3ae standard. See column 5, lines 30-39.)

Regarding claims 13-17, 26-28, 33, and 34, Turner discloses *storing the second ordered set in a memory of the second node/identifying the second ordered set at the second node/correcting effects of misrouted IEEE Std 802.3ae 10GBase-X lanes in response to said identified second ordered set/opening a first switch coupled between a first input port and a first output port; and closing a second switch coupled between the first input port and a second input port/opening a third switch coupled between the second input port and the second output port; and closing a fourth switch coupled between the second input port and the first output port* (Referring to Figures 11 and 12, incoming data is received from a standard XAUI transmitter on

input port 1102 as lanes A through D. The data is then de-serialized (1104), decoded (1106), and de-skewed (1108). The de-serializing, decoding and de-skewing is similar to that which occurs in the prior art XAUI receiver (FIG. 9) as already described. The XAUI receiver 1100 also includes a lane reordering block 1110 and a lane monitor 1112. The lane monitor 1112 monitors lanes A through D as packet data is received. Based on the received packet data (which is standard packet data without special lane identification codes), the lane monitor determines the proper lane assignments for lanes A through D and controls the lane reordering block 1110 based on the lane determination. The lane reordering block 1110 reorders the lanes A through D to the appropriate lanes 0 through 3 based on control signals from the lane monitor. The appropriate lanes are then passed to the control character removal block 1114 and data is finally output on port 1116. The control character removal is similar to that which occurs in the prior art XAUI receiver. In particular, Figure 12 shows the format of fault signaling that may occur in the received packets. When a XAUI link first starts up, the XAUI transmitter sends either idle control characters on all four lanes or fault sequence ordered sets. During a fault sequence, a sequence control character 1202 appears on lane 0 at the same time that a 0x1 or 0x2 character 1204 appears on lane 3. Thus, the lane monitor 1112 identifies lanes 0 and 3 by observing this fault sequence received on the input port 1102. See column 4, lines 11-58.)

Regarding claims 19-21, Turner disclose *wherein said second ordered set is identical to said first ordered set* (Referring to Figure 12, when a XAUI link first starts up, the XAUI transmitter sends either idle control characters on all four lanes or fault sequence ordered sets. During a fault sequence, a sequence control character 1202 appears on lane 0 at the same time that a 0x1 or 0x2 character 1204 appears on lane 3. Thus, the lane monitor 1112 identifies lanes

0 and 3 by observing this fault sequence received on the input port 1102. See column 4, lines 48-58.)

Regarding claim 29, Turner discloses *wherein said set of switches comprises sixteen switches* (Referring to Figures 11-13, the XAUI receiver may be used to link integrated circuits, such as a number switches, even sixteen for example, or may allow the use of a cable with arbitrarily connected lanes to link system components. See column 8, lines 32-34.)

Conclusion

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to DONALD L. MILLS whose telephone number is (571)272-3094. The examiner can normally be reached on 9:00 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chi Pham can be reached on 571-272-3179. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Donald L Mills/
Examiner, Art Unit 2416
March 14, 2009